



IFW

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June 27, 2006

Commissioner for Patents
P O Box 1450
Alexandria, Va.

RE: Application No. 107640,146.

To Whom It May Concern,

I am writing to you today, after speaking with Greg Wilson. I have called upon several occasions regarding the progress of the above mentioned patent application, and was informed that your office was extremely backlogged, that I would hear something shortly. After speaking with Mr. Wilson, it appears that my paperwork has been yet again been misplaced.

Enclosed, please find:

Your form PO-90C, with mailing date circled.

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Copy of original paperwork [37 CFR 1.21 and response]

Thank you for your time and attention in this matter.

I am eagerly awaiting your reply.

Yours Truly

Donald R. Patterson



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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/764,146 | 01/15/2004 | Donald Royce Patterson | | 8143 |
| 7590 | 10/28/2005 | | | |
| Donald R. Patterson 21615 Park Wind Ct Katy, TX 77450 | | | | |
| | | | EXAMINER WILSON, GREGORY A | |
| | | | ART UNIT 3749 | PAPER NUMBER |

DATE MAILED: 10/28/2005

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O I P E I A P I S
JUL 12 2006

**Notice of Non-Compliant
Amendment (37 CFR 1.121)**

Application No.

10/764,146

Applicant(s)

Examiner

Art Unit

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

The amendment document filed on 03/21/05 is considered non-compliant because it has failed to meet the requirements of 37 CFR 1.121 or 1.4. In order for the amendment document to be compliant, correction of the following item(s) is required.

THE FOLLOWING MARKED (X) ITEM(S) CAUSE THE AMENDMENT DOCUMENT TO BE NON-COMPLIANT:

☐ 1. Amendments to the specification:

- ☐ A. Amended paragraph(s) do not include markings.
☐ B. New paragraph(s) should not be underlined.
☐ C. Other _____

☐ 2. Abstract:

- ☐ A. Not presented on a separate sheet. 37 CFR 1.72.
☐ B. Other _____

☒ 3. Amendments to the drawings:

- ☒ A. The drawings are not properly identified in the top margin as "Replacement Sheet," "New Sheet," or "Annotated Sheet" as required by 37 CFR 1.121(d).
☐ B. The practice of submitting proposed drawing correction has been eliminated. Replacement drawings showing amended figures, without markings, in compliance with 37 CFR 1.84 are required.
☒ C. Other EACH SHEET OF DRWGS. SHOULD HAVE THE NUMBER OF SHEETS AT THE TOP OF

PAGE.

☒ 4. Amendments to the claims:

- ☐ A. A complete listing of all of the claims is not present.
☐ B. The listing of claims does not include the text of all pending claims (including withdrawn claims)
☒ C. Each claim has not been provided with the proper status identifier, and as such, the individual status of each claim cannot be identified. Note: the status of every claim must be indicated after its claim number by using one of the following status identifiers: (Original), (Currently amended), (Canceled), (Previously presented), (New), (Not entered), (Withdrawn) and (Withdrawn-currently amended).
☐ D. The claims of this amendment paper have not been presented in ascending numerical order.
☒ E. Other: CLAIMS MUST START ON A SEPARATE PAGE. CLAIMS NOT SHOWING ANY CHANGES TO

CASE.

☐ 5. The amendment is unsigned or not signed in accordance with 37 CFR 1.4.

For further explanation of the amendment format required by 37 CFR 1.121, see MPEP § 714 and the USPTO website at <http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/officeflyer.pdf>.

TIME PERIODS FOR FILING A REPLY TO THIS NOTICE:

- Applicant is given **no new time period** if the non-compliant amendment is an after-final amendment or an amendment filed after allowance. If applicant wishes to resubmit the non-compliant after-final amendment with corrections, the **entire corrected amendment** must be resubmitted within the time period set forth in the final Office action.
- Applicant is given **one month**, or thirty (30) days, whichever is longer, from the mail date of this notice to supply the **corrected section** of the non-compliant amendment in compliance with 37 CFR 1.121 or 1.4, if the non-compliant amendment is one of the following: a preliminary amendment, a non-final amendment (including a submission for a request for continued examination (RCE) under 37 CFR 1.114), a supplemental amendment filed within a suspension period under 37 CFR 1.103(a) or (c), and an amendment filed in response to a *Quayle* action.

Extensions of time are available under 37 CFR 1.136(a) only if the non-compliant amendment is a non-final amendment or an amendment filed in response to a *Quayle* action.

Failure to timely respond to this notice will result in:

Abandonment of the application if the non-compliant amendment is a non-final amendment or an amendment filed in response to a *Quayle* action; or

Non-entry of the amendment if the non-compliant amendment is a preliminary amendment or supplemental amendment

E. J. Payton
Legal Instruments Examiner (LIE)

571-272-4382
Telephone No.



APPARATUS FOR HEATING PLASTIC PIPE

ABSTRACT OF THE DISCLOSURE

An apparatus is provided for heating thermoplastic pipe in the field, including a container for receiving the pipe and a conduit communicating with the container for routing hot exhaust gases from an internal combustion engine into the container to heat the pipe for bending. Interchangeable templates to facilitate the bending of large and small schedule pipe. A diffuser is provided in the container to disperse the hot gases evenly around the pipe to promote uniform bending of same. Apparatus is insulated enabling faster bending and the ability to handle the apparatus during use.

REFERENCES CITED

| | | | |
|--------------|------------|-----------------|------------------|
| 3,965,715 | 06/29/1976 | Parmann | 72/342.1; 72/369 |
| 2,571,416 | 10/16/1951 | Brown | 65/281 |
| 2,480,774 | 08/30/1949 | Rossheim, et al | 72/128; 65/271 |
| | | | 72/369; 264/339 |
| 6,033,213 A | 03/07/2003 | Halverson, Jr. | 432/225 |
| 6,257,880 B1 | 07/10/2001 | Hirayama | 432/225 |
| 6,561,797 B1 | 05/13/2003 | Johnson | 432/225 |
| 5,853,289 A | 12/29/1998 | Temple | 432/225 |

CLAIMS

WHAT IS CLAIMED

- (Currently Amended) 1. An apparatus for heating plastic pipe comprised of;
- a. An inner housing having at least one first opening and a second opening therein for receiving pipe to be heated,
 - b. an outer housing having at least one first opening and a second opening therein for receiving pipe to be heated,
 - c. a layer of insulation between the two housings, creating an oven effect and allowing the retention of heat, while allowing the outside of the box to be handled immediately after, and during use,
 - d. a conduit having a first end communicating with the second opening in the container and a second end adapted to be attached to the source of hot exhaust gases to route said gases into the container to heat the pipe whereby it may be bent,
 - e. interchangeable multi-sized templates on both to be inserted between inner and outer housings of apparatus, maximizing heat retention, while still allowing the apparatus adequate ventilation and constant circulation of gases.

- (Currently Amended) 2. The apparatus as set forth in claim 1 including a permanent attached diffuser that;
- a. Is mounted to the inner housing adjacent the second opening in the container to disperse hot exhaust gases,
 - b. has perforations symmetrically spaced on the top and bottom of the diffuser to circulate the heat evenly, creating a uniform bend,
 - c. extends the entire length of the inner housing.

- (Currently Amended) 3. Apparatus as claimed in 2 wherein the diffuser has at least one opening therein adjacent the pipe, to distribute extract gases to heat the pipe uses a source of hot exhaust gases from a motor vehicle, allowing small and large schedule pipe to be bent.

(Currently Amended) 4. The apparatus as claimed in 3 has interchangeable parts, but no moving parts.

(Currently Amended) 5. The apparatus of claim one allows various scheduled pipe to be bent, without having to allow the complete apparatus to reach a lower temperature.

(Currently Amended) 6. Templates as claimed in 1 allow multiple bends to be made more rapidly.

(Currently Amended) 7. (Canceled)

(Currently Amended) 8. (Canceled)

SUBSTITUTE SPECIFICATION DESCRIPTION

BACKGROUND OF THE INVENTION

The invention relates to an apparatus for heating plastic pipes so they may be bent. More particularly, the invention relates to an apparatus that may be conveniently used in fieldwork to heat PVC plastic pipes, so that they may be bent and fitted on site.

It is known in the art to heat plastic pipe by enclosing it in a box and subjecting it to infrared energy supplied by electrical heaters. In addition, method and apparatus for bending tubes by applying heat to them are disclosed in U. S. Patent No. 3,965,715 to Parmann, U. S. Patent No. 2,571,416 to Brown, and U. S. Patent No. 2,480,774 to Rossheim, et al. The disadvantages of the prior art are that they may be inconvenient for use in the field or at some remote site where a source of electricity or other means for heating the pipe is unavailable.

U.S. Patent No. 6,033,213, issued on March 7, 2003, to Halverson, Jr. relates to an apparatus for bending plastic pipe, with a diffuser that is removable and interchangeable with an additional diffuser if needed for heating different schedule pipe. This apparatus is not insulated. The disadvantage of the interchangeable diffusers is that it not only takes additional time to allow the apparatus to cool down for those in the field to change the diffusers, it requires extra space for carrying and storage. As this apparatus is not insulated, it will take additional time for field personnel to handle the unit for extra bends and storage. In addition, this apparatus has one size inlet in which the pipe is to be placed. This can permit either too much or too little of the gases to escape. An increased amount of heat escaping defeats the purpose of the apparatus, by not minimizing the gas flow and decrease the heat retained, resulting in an ineffective or incomplete bend. A decrease in allowance of the gases escaping will result in the build up of internal pressure, resulting in enough pressure to blow back into the heat source, possibly damaging the heat source.

U.S. Patent No. 6,257,880, issued on July 10, 2001, to Hirayama describes an apparatus made of galvanized steel, on wheels or rollers, with an internal burner,

utilizing a heat source or propane gas. The present invention is distinguishable from this apparatus in that there is no need for an internal burner, which may easily break upon usage in the field. The present invention provides the capabilities of the use of a number of heat sources, although the object of the invention is to utilize the convenient use of the exhaust of a motor vehicle. The present invention allows for faster installation, permitting faster bends and less equipment to be taken out on the field. As in the previous U.S. Patent No. 6,033,213 this apparatus has but one size inlet for the pipe, allowing too much or too little gas/heat to escape. It is also noted that present invention is made of aluminum and lightweight and, alleviating the need for rollers or wheels.

U.S. Patent No. 6,561,797, issued on May 13, 2003 to Johnson describes an apparatus for heating rigid plastic pipe with a gas burner. The present invention allows thin walled and thick walled plastic pipe to be manipulated. Having an internal gas burner this apparatus may break or malfunction with usage in the field. The present invention permitting various heat sources.

SUMMARY OF THE INVENTION

According to the present invention, a container or box is provided having openings in the ends to enclose a plastic pipe disposed through the box. A conduit is attached to the box and has an end adapted to connect to the exhaust pipe of a motor directed upon the pipe at the desired point to be bent. When the pipe is sufficiently heated, it will sag, it is then withdrawn from the box and bent in the usual and well-known manner.

The principal object of the invention is to supply the worker in the field with a durable, lightweight, self contained, portable source for bending thin walled and thick walled pipe.

It is also the object of the invention to supply a heat source that requires no electricity or propellants, that will heat up quickly, maintaining a proper temperature, and be able to be handled immediately after or during use, with the ability to cool down quickly for convenient storage.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a top perspective view of the apparatus of the invention,

Fig. 2 is perspective view of the conduit fitting,

Fig. 3 is an internal top sectional view of the apparatus of the invention, and

Fig. 4 is an internal end sectional view of the apparatus of the invention.

DETAILED DESCRIPTION OF THE EMBODIMENT

Referring now to Fig. 1, the apparatus of the invention is indicated generally at 1. An elongate container or box 2, with handle 3, is provided for surrounding the section of PVC pipe to be bent. The container preferably includes openings 4 formed through the ends 5 of the box, the openings being sized to permit positioning the pipe to be heated through the container 2, by use of templates 7. The lid 6 permits containment of hot exhaust gases in the container 2. A fitting 8, which may be any configuration although an elbow fitting is illustrated here, is provided mounted through an opening 9 in a side 10 of the container.

Referring now to Fig. 2, a flexible conduit 11 is connected to the fitting by any suitable means and has its opposite end adapted to engage the exhaust pipe 12 of motor vehicle 13. The various means of connection will be dependent upon the size of the motor vehicle's exhaust pipe 12.

Referring now to Fig. 3, in the preferred embodiment, a diffuser 14 is mounted in the internal container 19 and may consist of a longitudinally extended U shaped sheet of metal attached to the internal container 19 by welding or other practical means such as screws 15. The diffuser 14 is located so that the exhaust gases exiting from the through-fitting 8 impinge upon the diffuser plate and not directly upon the pipe to be bent. Spot heating of the pipe is therefore prevented and the hot gases are dispersed and caused to flow around the pipe for more uniform heating. Depending upon the type and thickness of the pipe to be bent, the diffuser may vary in length or construction and may include openings 16 there through, all of which is considered a part of the present

invention. Insulation 18 permits internal retention of heat, deterring outside heating of outer container 2.

Referring now to Fig. 4, in the preferred embodiment, a diffuser 14 is mounted in the internal container 19. This may consist of a longitudinally extended U shaped sheet of metal attached to the internal container 19 by welding or other practical means such as screws 15. The diffuser 14 is located so that exhaust gases impinge upon the diffuser plate and not directly upon the pipe to be bent. Spot heating of the pipe is prevented and hot gases are dispersed around the pipe for uniform heating. Insulation 18 permits internal retention of heat, deterring outside heating of container 2.

Referring now to Fig. 5, templates 7 with various sized openings 20, 21, 22, are provided to maintain internal conditions within the apparatus. The template used will be dependent upon the schedule of pipe to be bent. The appropriate template are slid into the distal ends of the container 2, between the side 5 and the inner box 19. Templates are utilized to control gas flow from the container, maintaining the proper temperature and internal pressure.

In the use of the invention, a pipe to be bent is placed in the container and positioned so that the centerline of the portion of the pipe where the bend is to be made is positioned opposite the fitting 8. The end 17 of the flexible conduit is then slipped over the exhaust pipe 12 of the motor vehicle and the motor vehicle's engine is started. The hot exhaust gases flow through the conduit and the fitting and strike the diffuser in the box where they are dispersed to surround the pipe through perforations 16. When the pipe is sufficiently heated to be bent, which condition may be determined by the pipe becoming limp and starting to sag, or grasping an end of the pipe and moving it to determine the softness of the section in the container, the pipe is slid horizontally out of either distal end of the apparatus. Whereupon it may be bent by hand or by the use of jigs, or other means such as are known in the art. Upon cooling, the pipe will retain the bent configuration and it may be carried to the jobsite for connection in other plumbing/electrical conduit bodies.

REPLACEMENT SHEET

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App # 10/764,146

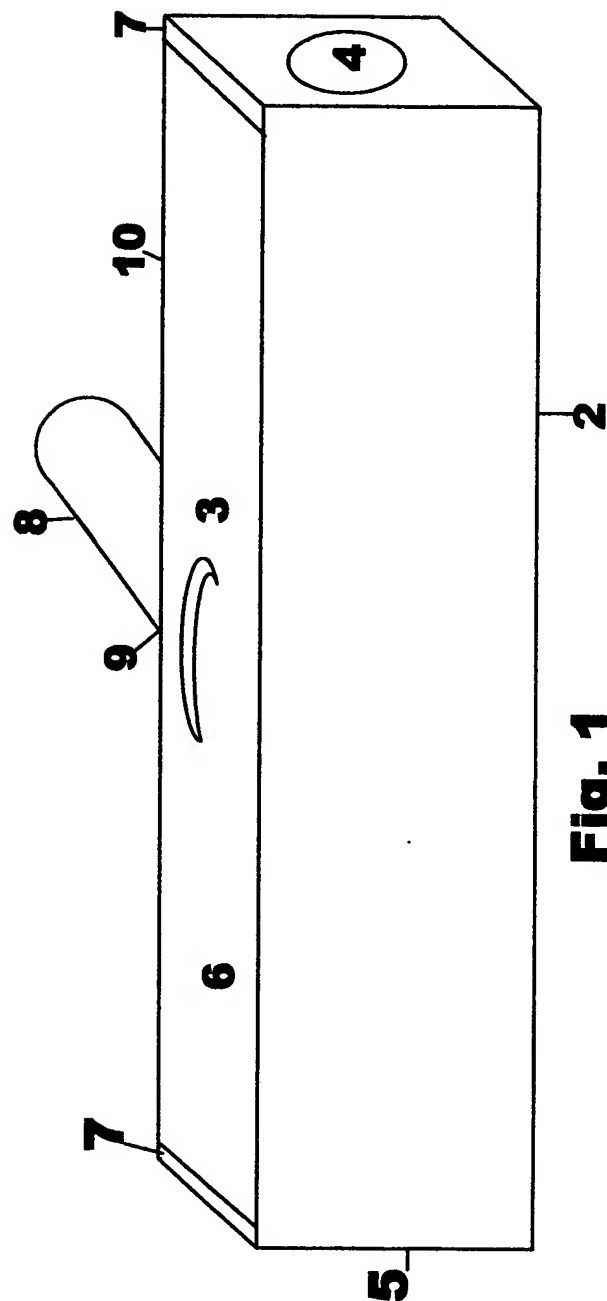


Fig. 1



REPLACEMENT SHEET

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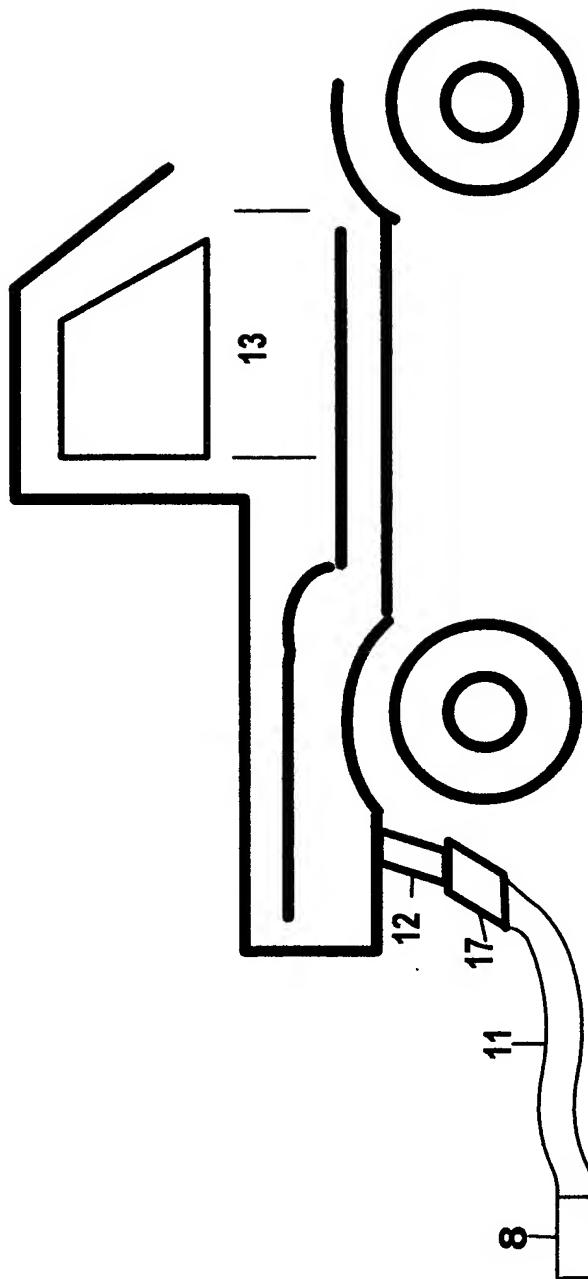


Fig. 2

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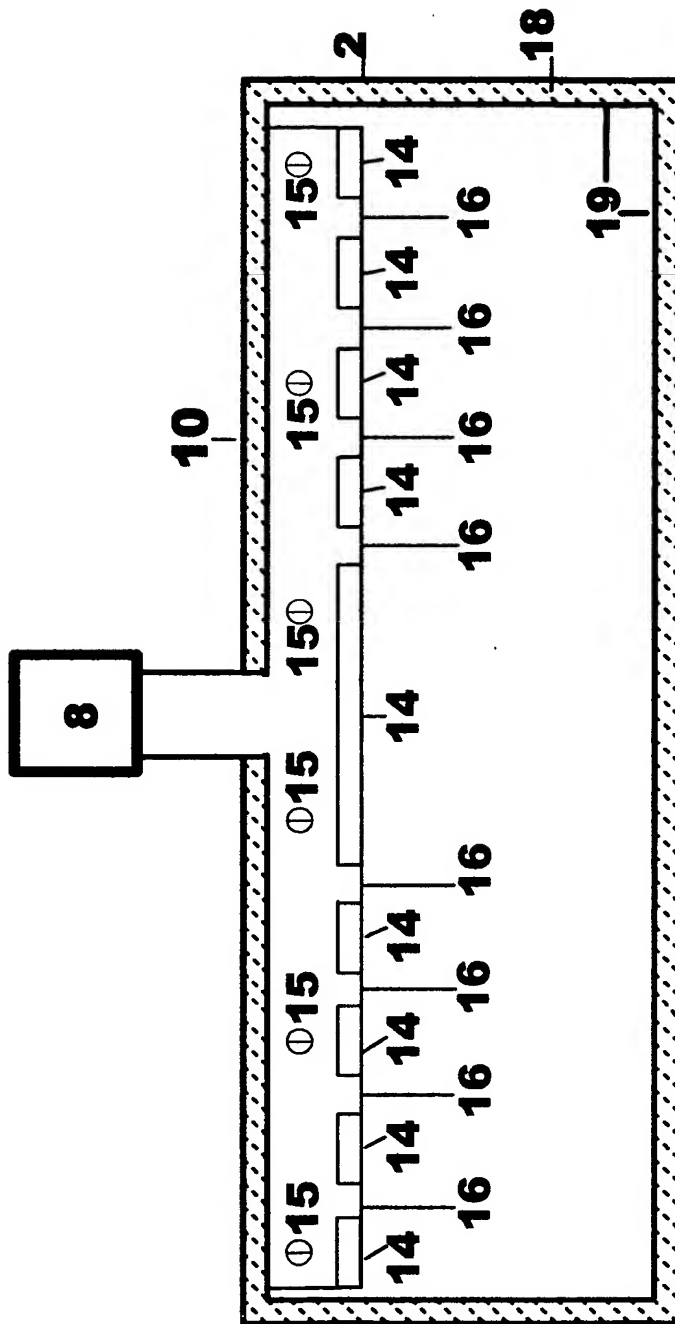


Fig. 3

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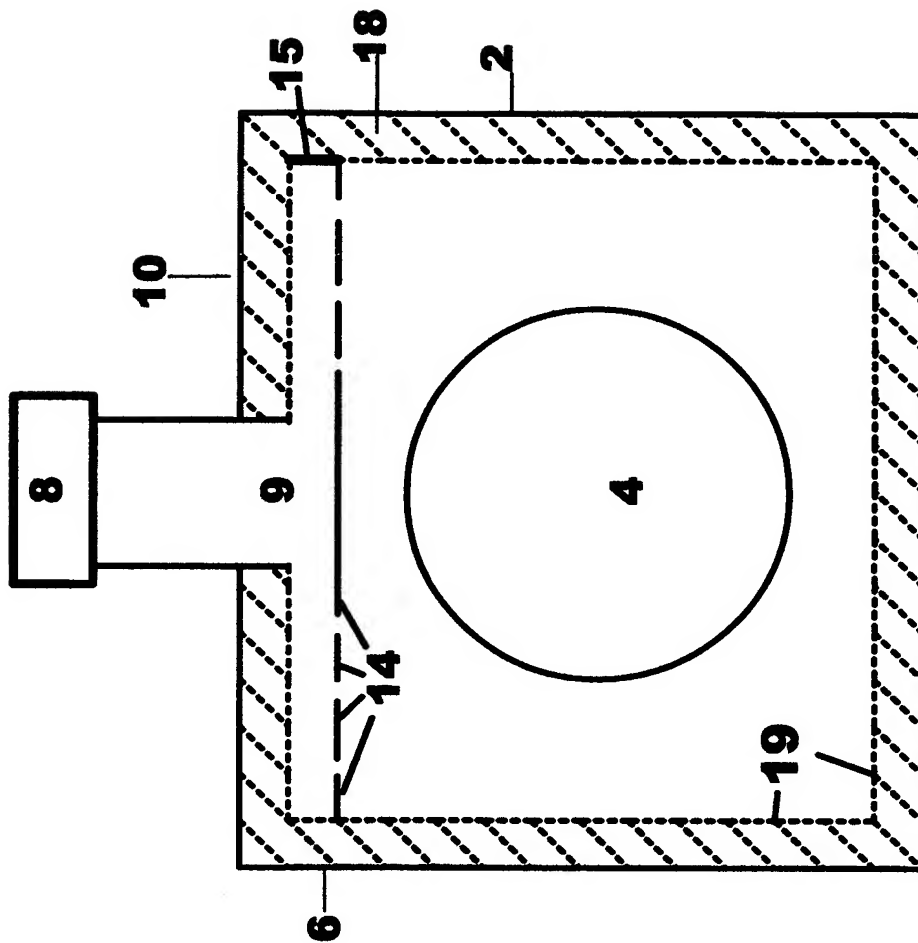


Fig. 4

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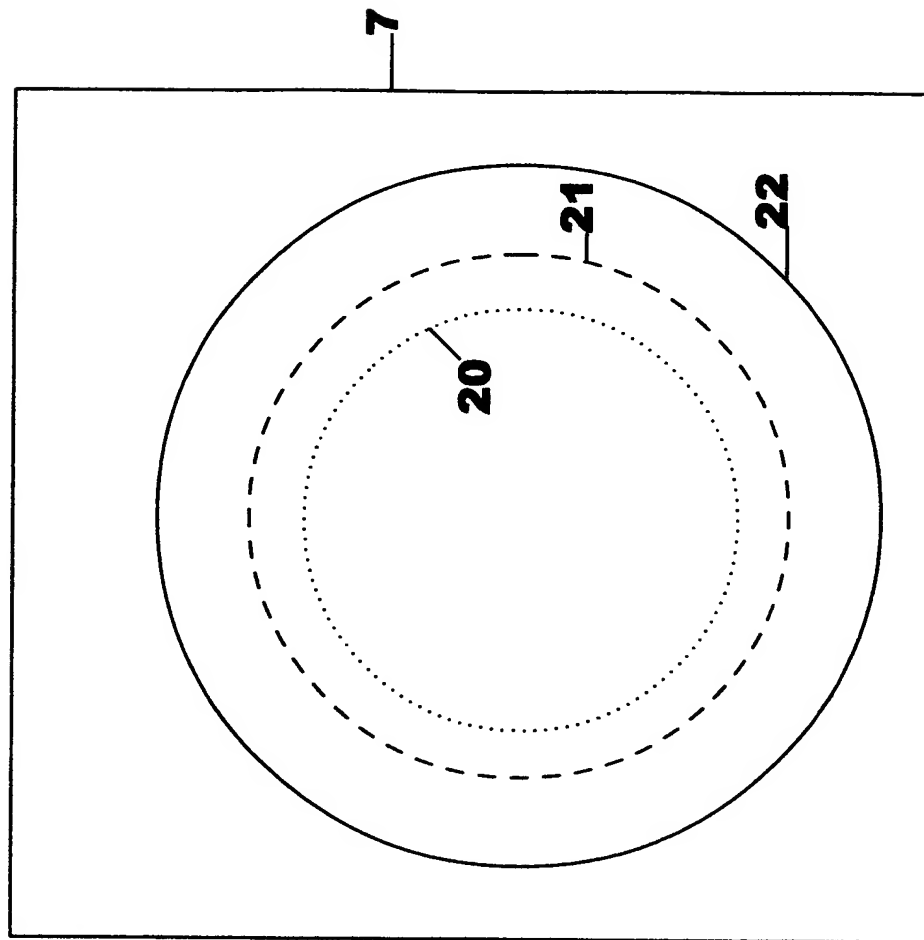


Fig.5